REMARKS/ARGUMENTS

Prior to this Amendment, claims 1, 3-15, 17-20, 22, 23, and 25-30 were pending in the application. No claim amendments are presented with this Amendment, and the Listing of Claims is provided only for the convenience of the Examiner.

Finality of July 26, 2006 Office Action

The application has been subject to three Office Actions and a Request for Continued Examination has been filed to continue prosecution in the case. The most recent Amendment after the November 4, 2005 Office Action clarified the claims mainly by bringing dependent claim limitations into independent claims.

A new Examiner has been appointed to examine the application and in preparing the July 26, 2006 Office Action, the Examiner performed yet another search. This has resulted in the July 26, 2006 Office Action citing 2 new references (i.e., Freeman and Schuster). However, the Office Action was made final – which, of course, places limits on adding or amending claims to address the new citations.

Applicant, therefore, respectfully requests that the finality of the Office Action be reconsidered and withdrawn. Applicant believes if a new Examiner had not been appointed it is likely that a new search would not have been performed. In any case, the claim amendments presented in the prior Amendment did not present new issues that were not before the Office due to the long history of prosecution for this application or otherwise require the additional search and new grounds for rejection.

However, Applicant does appreciate the fact that all anticipation rejections of the claims have been withdrawn and only obviousness rejections need to be addressed in this Amendment.

Rejections under 35 U.S.C. 103

In the July 26, 2006 Office Action, claims 1, 3-6, 8, 11-15, 17-20, 22, 23, and 25-30 were rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pat. Appl. Publ. No. 2002/0129374 ("Freeman") in view of U.S. Pat. No. 6,360,271 ("Schuster"). This rejection is traversed based on the following remarks.

Before turning to specific claim language, it may be useful to more generally describe some of the very significant differences between Applicant's invention and the technologies described in Freeman. Applicant's system is effective for mixing received streams with video portions that have been streamed over differing networks and/or different network paths. This is important where two or more sources of video streams are being combined into a single stream. Video time-based synchronization requires synchronization in the 100 nanosecond or lower range with higher definition requiring even higher levels of synchronization. In part, this is because video mixing may involve superimposition of two images or fading one into another or cutting a hole and then matting another into the hole (e.g., mixing, matting, keying, and the like). For example, a live stream of a news or weather anchor may be keyed into a hole created in another live stream (e.g., a stream of live action video or weather map or the like) during mixing operations. Such mixing may involve mapping video streams on a pixel by pixel basis or even fractions of pixels (e.g., image element in one stream to an image element in another stream). Such video mixing is often orders of magnitude more accurate than that required to match an audio signal to a video signal. Prior to the invention, the problems associated with such mixing of media streams transmitted over the Internet and other networks had not been addressed, and one solution was to simply display video streams separately (e.g., avoid mixing) or at most try to synchronize a sound stream with a video stream but again without mixing. Note also that the difference between mere multiplexing of video streams and the mixing described by Applicant was explained in detail in Applicant's September 12, 2005 Amendment.

There are numerous differences between the time-based mixing of received signals as taught by Applicant and the teaching of Freeman. Generally, Freeman explains in its Background that the methods described are for providing improved "seamless switching between compressed digital video signals in a low cost digital set top environment" with the video signals being received in a multiplexed signal form at the receiver or set top box. As discussed in the Summary, multiple video signals are combined by a multiplexer for transmission on desired channels such as over a cable or satellite transmission system. According to the Summary, the video streams are encoded and time synchronized prior to compression at the single source prior to transmittal over a single media or network (such as media 6 in Figure 1) (see, for example, para. [0028]). For example, splice points may be added to each of the video streams prior to compression and multiplexing to make later switching between the separate streams at an end user, with the splice points being time synchronized at the source or transmittal point. In other words, Freeman is directed to providing an improved way to switch or cut to a different video stream and is not concerned at all with mixing two or more video streams into a single video stream. Applicant provides methods and systems that combine two or more video streams received from differing sources (e.g., over differing networks or paths) and with differing transmission times or delays into a single stream in which the streams are synchronized (e.g., mapped pixel to pixel in some cases) based on transmission time from their sources. In contrast, Freeman teaches controlling the source to encode time-synched splice points in video streams prior to multiplexing, which requires the use of a single transmission point and control over all sources of video received by an end user.

Operation of Freeman's system is explained well with reference to Figures 5 and 6 beginning with para. [0101]. As discussed in a summary paragraph [0112], "seamless switching at the decoder is facilitated at the encoder 312 by time synchronizing the signals, time locking the encoders and creating a time gap 340 to each of the digital video streams." Figure 5 shows a system provided at a single

transmission location and the encoders 312 are time synchronized to allow the splice points or time gaps to be provided to allow seamless switching between the four video streams that are multiplexed by multiplexer 324 after encoding/compression by encoders 312. The multiplexed signals are then transmitted by transmitter 328 to an end user (see Figure 7 or Figure 1). As can be seen, any time synchronization occurs at the transmission source and not at an interface where the streams are received after being transmitted over one or more transmission networks that will cause them to be subjected to variable transmission delays. Also, it can be seen that the video signals are not combined into a single mixed stream but are instead simply multiplexed for later selection or switching by an end user.

Other differences between Applicant's invention and Freeman become apparent from reading Freeman's Description of the Preferred Embodiments. For example, paragraph [0054] discusses the use of multiple data compressors 3 but there is no teaching that these compressors utilize different compression standards and no discussion is provided of decoding differing standards at the end user's system. In fact, Figure 5 shows with encoders 312 that provide signals that apparently are compatible since they are multiplexed by multiplexer 324. Beginning at para. [0081], Freeman discusses an embodiment that enables seamless flicker-free transparent switching between the signals. In para. [0083], the seamless switch is described as being "between two or more separate digital video signals," which reinforces the construction that the transmitted signals are merely multiplexed but separate signals and are not mixed into a single signal prior to transmission. Significantly, at the end of para. [0084] and into para. [0085], Freeman teaches that seamless splicing between two video streams is supported by switching in "the digitally compressed domain thereby eliminating the need to decode two" streams at the same time and the compressed video information is placed in a buffer to minimize the size of such buffer. In contrast, Applicant shows is Figure 2 that the CODEC neutral streams are placed into buffer, and then are combined time-

adjusted streams prior to being combined into a single compressed, composite stream for transmittal to an end user.

Turning now to the claim language, claim 1 calls for an input interface that receives first and second media streams that each include a streaming video portion. A controller determines a "variable transmission delay for the first and second media streams from the first and second media sources to the input interface and performs the selective retrieving based on the determined variable transmission delays." Additionally, the controller mixes the retrieved time-adjusted streams "into a composite media stream wherein the first and second time-adjusted streams are synchronized based on time." The combined teaching of Freeman and Schuster fails to teach or suggest each of these limitations of claim 1.

First, Freeman fails to teach the input interface of claim 1 which receives first and second media streams that have been transmitted over a communications network from "a first and a second media source." Freeman is cited at paras. [0013] to [0016], [0020], and [0048] for teaching such an input interface. However, in paras. [0013] to [0016], Freeman discusses an output interface used to transmit multiplexed signals over a cable or satellite system for receipt at an end user's location. The end user's location is not described as receiving streams from more than one media source. In para. [0020], Freeman teaches multiple signals are transmitted (in multiplex, compressed form) to the end user's location but again this is from a single transmission source. In para. [0048], Freeman states prior systems transmitted the signals over separate channels, but the Freeman system instead multiplexes the compressed, digital signals to only use a single transmitter 5 and, as a result, teaches the use of a single media source and not "a first and a second media source" as called for in claim 1. Hence, Freeman fails to teach at least this element of claim 1.

Second, Freeman fails to teach first and second data buffers for storing the data packets of the first and second media streams. As discussed in paras. [0124] and [0125], a user selected via host processor 360 a particular one of the

multiplexed video signals at the user location and only the selected video is "buffered in a standard video buffer and then output for decoding." Also, in paras. [0084] and [0085], Freeman teaches only one video stream is buffered and then decoded when there is enough information "to ensure continuous playback" of the selected one of the video signals. Hence, Freeman also fails to show the first and second data buffers called for in claim 1.

Third, the controller called for in claim 1 is not shown by Freeman because Freeman fails to show a controller configured "for selectively retrieving the data packets of the first and second media streams" from the buffers to "form a first and a second time-adjusted stream." Freeman teaches that only a single stream is stored in the end user's buffer and there would be no reason to selectively retrieve the packets to form time adjusted streams. Further, Freeman cannot teach forming first and second streams because only one stream is withdrawn from its buffer and then decoded. The portions of Freeman cited in the Office Action all appear to occur at the source and discuss time synchronizing with encoders 312 and not after received and buffered at the end user's location. For this additional reason, Freeman fails to teach each limitation for which it is cited.

Fourth, the controller "determines a variable transmission delay for the first and second media streams from the first and second media sources to the input interface and performs the selective retrieving based on the determined variable transmission delays." Freeman fails to teach selective retrieving from the end user buffer and clearly, not based on a determined variable transmission delay. The Office Action agrees that Freeman fails to show such a determination and that selective retrieval is performed based on such a determination. Schuster is cited for overcoming this deficiency at col. 7, lines 14-67, col. 8, lines 17-56, and col. 12, lines 10-67. Schuster teaches the use of synchronized clocks at a transmitting device and a receiving device to remove jitter from a single media signal such as by providing "substantially the same inter-packet time spacing at the receiving end delay period for a sequence of packets." However, there is no discussion of

determining such a delay from multiple sources and then using such a transmission delay to retrieve media signals from a buffer based on such a determination to retrieve time-adjusted signals. As discussed above, Freeman fails to teach such selective retrieval as it only shows one selected signal being buffered, and, hence, the combination of Schuster and Freeman would only result in the same inter-packet time spacing being applied at the user location to the one selected signal as was applied to the single media source of Freeman. The combination of the two references would not result in the claimed invention.

Fifth, Freeman fails to show "mixing" of video streams to provide a composite media stream in which the streams are "synchronized based on time." In claim 1, the controller further is configured for "mixing the first and second time-adjusted streams into a composite media stream wherein the first and second time-adjusted streams are synchronized based on time." The Office Action cites Freeman for teaching the mixing at paras. [0013] to [0016], para. [0020], para. [0048], paras. [0099] and [0100], and paras. [0205] to [0207]. However, as discussed above, Freeman only teaches multiplexing of signals and not mixing. The difference between these two functions was discussed in the September 2005 Amendment submitted by Applicant. Further, the multiplexing occurs at the transmittal source such as with multiplexer 324 prior to transmission by transmitter 328. The receiving system shown for example in Figure 7 does not include a controller that selectively retrieves buffered data packets to form time adjusted streams and then mixes the two streams into "a composite media stream wherein the first and second time-adjusted streams are synchronized based on time." Instead, a user selects one of the signals in the multiplexed stream and a demux/demodulator 372 processes the packets for display via video device 388. For all of these reasons, the combined teaching of Freeman and Schuster fails to teach or suggest the system of claim 1, and Applicant requests that the rejection be withdrawn.

Claims 3-6, 8, and 11-14 depend from claim 1 and are believed allowable over Kerr at least for the reasons provided for allowing claim 1. Claims 3 and 4 are

addressed to the two streams having differing compression formats as received and handling the streams to allow mixing by decoding into compatible forms. There is no discussion of decoding the two streams into formats that are compatible prior to storage in buffers in Freeman (or Schuster). Applicant asks Examiner to point to a device in Freeman that decodes the video streams that have two differing compression formats or to withdraw the rejection. Freeman teaches that a variety of compression formats may be used by the encoders 312 but nothing teaches that they differ and this would not make sense since their output could not then readily be multiplexed for transmittal. After receipt at the end user's location, the Freeman teaches that only one signal is buffered and it is buffered in a compressed form to save memory space. There is no teaching that two streams are decoded and that such streams had differing compression formats. Schuster is not cited for providing teaching relevant to the limitations of claims 3 and 4. For this additional reason, claims 3 and 4 are believed allowable over Freeman and Schuster.

Independent claim 15 includes limitations similar to claim 1. Hence, the reasons provided for allowing claim 1 over Freeman and Schuster are believed applicable to claim 15. Additionally, claim 15 includes limitations similar to dependent claims 3 and 4, and the reasons for allowing claims 3 and 4 over Freeman and Schuster are applicable to claim 15. Specifically, the Examiner is requested to show in Freeman where a decoder decodes two video streams into compatible formats (which is useful for facilitating mixing which as discussed with reference to claim 1 is not performed by Freeman). For example, Applicant could find no discussion of such functions in the description of the decoder 372 shown in Freeman's Figure 7.

Claims 17-19 depend from claim 15 and are believed allowable over Freeman and Schuster at least for the reasons provided for claim 15. Claim 18 calls for concurrent delivery of time-adjusted first and second streams in a composite media stream, and as discussed above for video streams this typically involves a resolution or even pixel-by-pixel mapping or the like not shown by

Freeman as this reference fails to teach mixing of video streams and instead discusses multiplexing at a source. For these additional reasons, claim 18 is believed allowable over Freeman and Schuster.

Independent claim 20 was rejected for substantially for the same reasons as provided for claim 1. Hence, the reasons for allowing claim 1 over Freeman and Schuster are believed applicable to claim 20. Additionally, claim 20 calls for the two media streams to include data packets from one or more video files and adjusting the two streams including "matching the data packets of the first and second media streams based on transmittal times from the first and second media sources." Freeman fails to discuss matching the streams it multiplexes based on transmittal times from original sources such as elements 300 but instead teaches synchronizing the clocks of encoders 312 immediately prior to multiplexing with device 324 and then transmitting the multiplexed signal.

Further, in claim 20, a "synchronized media stream" is created "by mixing the first and the second media streams" such that the streams are presented "concurrently." As discussed with reference to claim 1, Freeman fails to show any mixing of video streams but only discusses multiplexing (and, further, this multiplexing is done prior to transmittal over the Freeman network), and as a result, the reference cannot anticipate claim 20 because it does not show a stream that comprises the mixed first and second streams. Further, claim 20 requires matching of data packets of the two streams and this is not shown by Freeman for two video streams. The multiplexed streams do not discuss presenting signals concurrently but instead a selected signal is buffered and then later encoded for presentation. Hence, claim 20 is not anticipated (or even suggested) by Freeman, and Schuster is not cited for overcoming these deficiencies in Freeman. Applicant requests that the rejection be withdrawn as unsupported by these references.

Claims 23 and 25-30 depend from claim 20 and are believed allowable over Freeman and Schuster for at least the reasons provided for allowing claim 20.

Claims 25 and 26 have limitations similar to claims 3 and 4 and are believed allowable for the reasons provided for these claims.

Additionally, the Office Action rejected claims 7, 9, and 10 under 35 U.S.C. 103(a) as being unpatentable over Freeman and Schuster as applied to claim 5 and further in view of U.S. Pat. No. 6,934,759 ("Hejna"). Claims 7, 9, and 10 depend from claim 1 and are believed allowable over Freeman and Schuster at least for the reasons provided for allowing claim 1 over these references. Hejna does not overcome the deficiencies of these two references discussed above with reference to claim 1 and is not cited for providing such teaching. Therefore, claims 7, 9, and 10 are believed allowable over the teaching of these three references.

Conclusions

In view of all of the above, it is requested that a timely Notice of Allowance be issued in this case.

No fee is believed due with this Amendment. However, any fee deficiency associated with this submittal may be charged to Deposit Account No. 50-1123.

Respectfully submitted,

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